

Application No. 10/565,676  
Reply to Office Action of June 5, 2007

**Amendments to the Drawings:**

The attached sheet of drawings includes changes to Fig. 10. Fig. 10 is designated by a legend of -- Prior Art --.

Attachment: Replacement Sheet

**REMARKS**

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-20 are presently active in this case. Claims 1, 5, 11, and 13 have been presently amended. Claim 4 has been cancelled without prejudice or disclaimer. No new matter has been added.

In the Office Action, Figure 10 was objected to. Claims 1-6, 13-15, and 19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Schmidt et al (U.S. Pat. No. 6,596,085). Claims 7-8 and 10-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmidt et al in view of Sun et al (U.S. Pat. No. 6,409,839). Claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmidt et al in view of Pang et al (U.S. Pat. No. 6,517,634). Claims 1-8, 10-15, and 19-20 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-16 and 25-26 in U.S. Serial No. 10/556,355 in view of Schmidt et al. Claims 9 and 16-18 were indicated as being allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

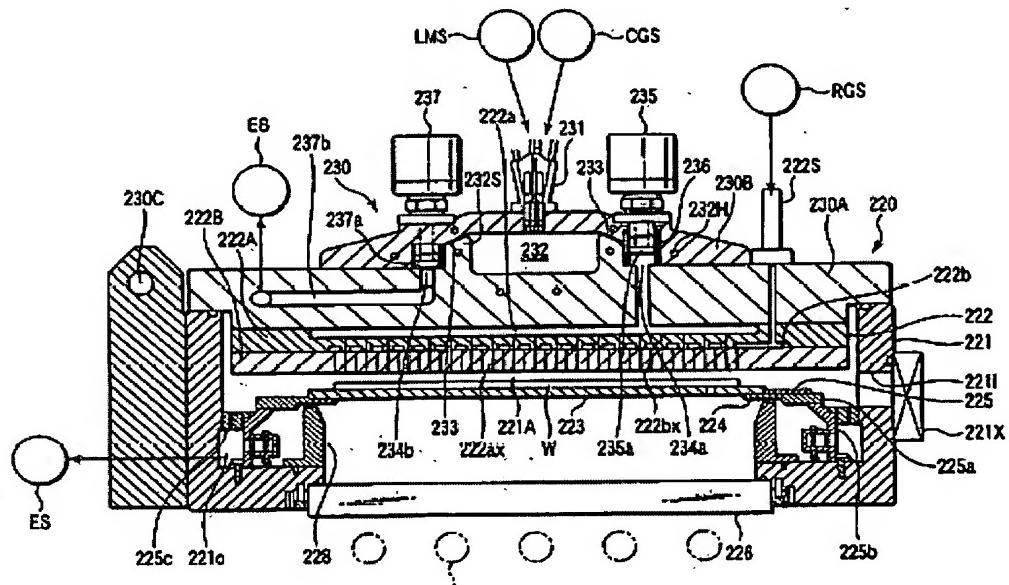
Applicant acknowledges with appreciation the indication of allowable subject matter in Claims 9 and 16-18.

Regarding the drawing objection, submitted herewith is a Letter Submitting a Replacement Drawing Sheet adding the suggested label of -- Prior Art -- to Figure 10. Thus, the objection to Figure 10 has been overcome.

Regarding the double patenting rejection, submitted herewith is a Terminal Disclaimer. Thus, the double patenting rejection has been overcome.

Claims 1 and 13 have been presently amended to clarify the subject matters thereof without adding any new matter. The amendments are supported by Figs. 1-2 and the

corresponding description thereof. Figure 1 is reproduced below for the sake of convenience. See specification, pages 15 and 19-20 for an illustrative discussion of a spraying nozzle 231, a vaporizing chamber 232 forming a spraying space of a corresponding spraying nozzle, a narrow passageway 233 communicating with the corresponding vaporizing chamber, a draining unit 234 communicating with the corresponding narrow passageway, and a source gas diffusion space (region around gas introduction unit 222) communicating with the draining unit and the reaction chamber 221.



Regarding the art rejections, the Examiner's attention is invited to M.P.E.P. § 2131 which states that to anticipate a claim, the reference must teach every element of the claim.

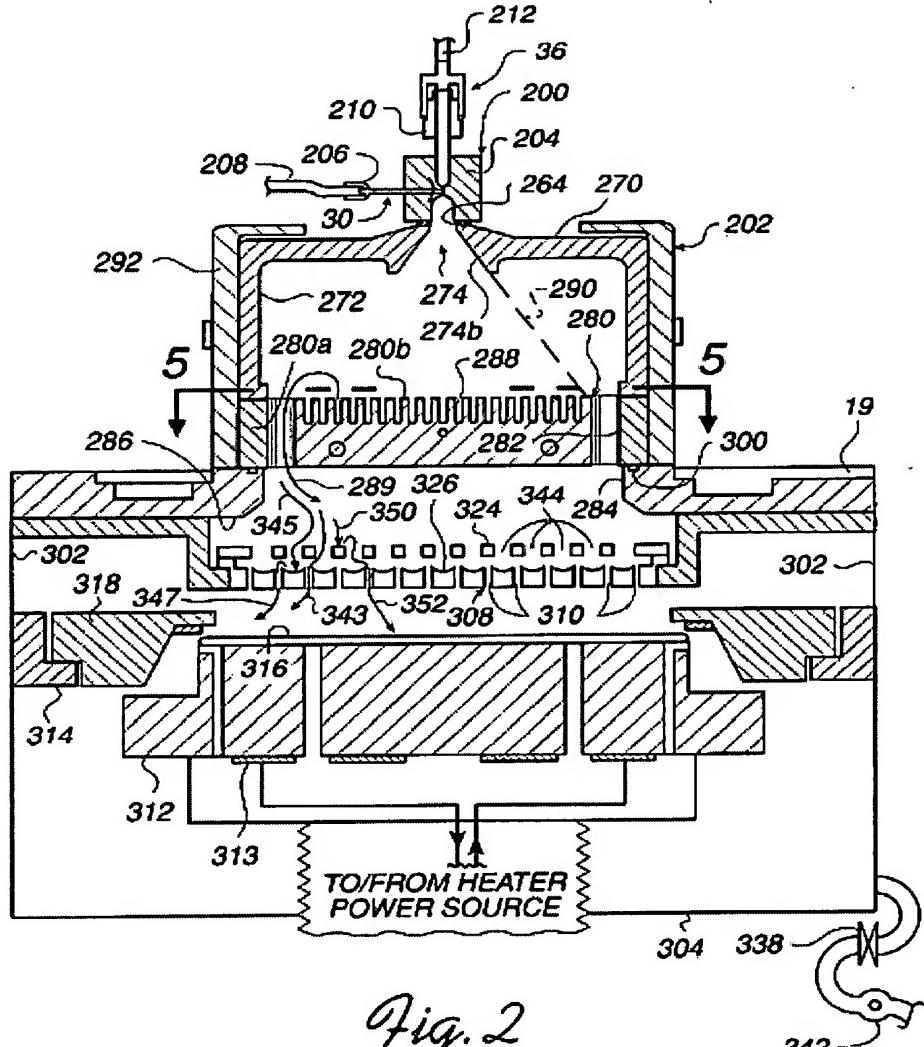
"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Furthermore, the Examiner's attention is invited to M.P.E.P. § 2143.03 states that, to establish *prima facie* obviousness, all claim limitations must be taught or suggested by the

prior art. In re Royka, 490 F.2d 981,180 USPQ 580(CCPA 1974). In this response, Applicant submits that the arrangement of 1) a narrow passageway to a vaporizing chamber, 2) a draining unit communicating with the passageway, and 3) a gas diffusion space communicating with the draining unit (as defined in independent Claim 1) is a structural arrangement not shown or suggested in the applied art.

Specifically, with regard to Claim 1, Claim 1 is directed to a gas reaction apparatus including a vaporizer for producing a reaction gas by vaporizing a liquid source material; and a reaction chamber in which the reaction gas reacts, wherein the vaporizer is configured as a unit for constituent members forming the reaction chamber, and the reaction gas produced in the vaporizer is directly introduced into the reaction chamber. Further, the vaporizer in Claim 1 includes a spraying nozzle; a vaporizing chamber forming a spraying space of the corresponding spraying nozzle; a narrow passageway communicating with the corresponding vaporizing chamber; *a draining unit communicating with the corresponding narrow passageway;* and *a source gas diffusion space communicating with the draining unit and the reaction chamber.*

Schmitt et al disclose an apparatus for vaporization of deposition material in a deposition process system. The vaporizer 12 of Schmitt et al is shown in Fig. 2. The Office Action asserted on page 4 that a space below hot plate 280 and shower head 308, including shadow plate 324, corresponds to a draining unit. Figure 2 of Schmitt et al is reproduced below for the sake of convenience.



Specifically, Schmitt et al describe at col. 9, lines 13-50, that the nature and function of the shadow plate 324, associated in the Office Action with a draining unit, is to prevent the flow of liquid material to the wafer surface by capturing and secondarily vaporizing such liquid. Schmitt et al's space below hot plate 280 and shower head 308, including shadow plate 324 would more closely correspond to a source gas diffusion space than a draining unit.

Hence, the Office Action has not made its requiring showing in Schmitt et al of each and every element of Claim 1 in as complete detail as is contained in Claim 1, as the elements associated in the Office Action with a draining unit is not properly a draining unit. Thus, Claim 1 is not anticipated by Schmitt et al.

Independent Claim 13 defines a semiconductor processing apparatus, including a vessel forming a processing chamber for processing a substrate to be processed, the vessel having a upper plate capable of being attached thereto and detached therefrom; a supporting member, disposed inside the vessel, for supporting the substrate to be processed; a showerhead for supplying a processing gas into the processing chamber, the showerhead being disposed below the upper plate to face the substrate supported by the supporting member; a vaporizing chamber, disposed on the upper plate, for producing the processing gas by vaporizing a liquid source material; and a gas passage, configured to communicate with the vaporizing chamber, for flowing the processing gas; and *a draining unit for communicating with the gas passage through the upper plate*. Further, *the showerhead includes a source gas diffusion space communicating with the draining unit and the processing chamber.*

Similar to that explained above, since Schmitt et al do not disclose the arrangement of 1) a gas passage to a vaporizing chamber, 2) a draining unit communicating with the gas passage, and 3) a gas diffusion space communicating with the draining unit, Claim 13 is also believed to patentably define over Schmitt et al.

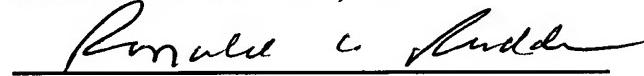
Further, it is also believed that the Claims 2-8, 10-12, 14, 15, 19 and 20 directly or indirectly depending on Claim 1 or 13, are allowable for the same reasons indicated with respect to Claim 1 or 13, and further because of the additional features recited therein.

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Consequently, in view of the present amendment and in light of the above discussions, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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